**Refraction Lab Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |  |  |
| --- | --- | --- | --- |
| /7 KU | /10 APP | /6 TI | /8 COM |

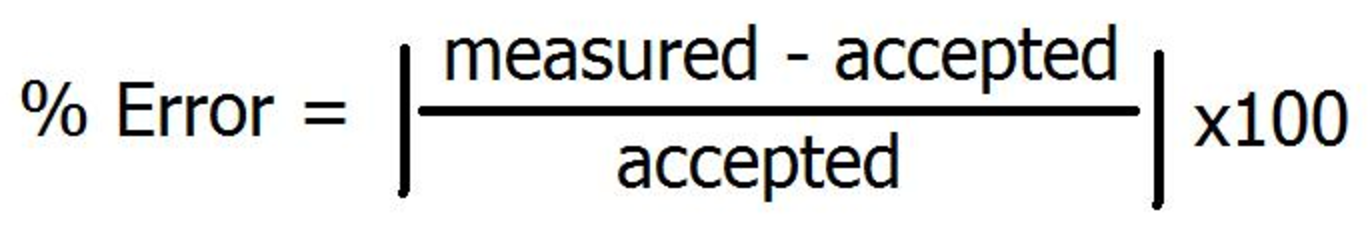
1. Making Measurements: using the materials provided measure the angle of refraction for the following angles of incidence and complete the table below. **[5 APP]**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Angle of Incidence, θi** | **Angle of Refraction, θR** | **sin θi** | **sin θR** | **\_\_sin θi\_\_**  **sin θR** |
| **0** |  |  |  |  |
| **10** |  |  |  |  |
| **20** |  |  |  |  |
| **30** |  |  |  |  |
| **40** |  |  |  |  |
| **50** |  |  |  |  |
| **60** |  |  |  |  |

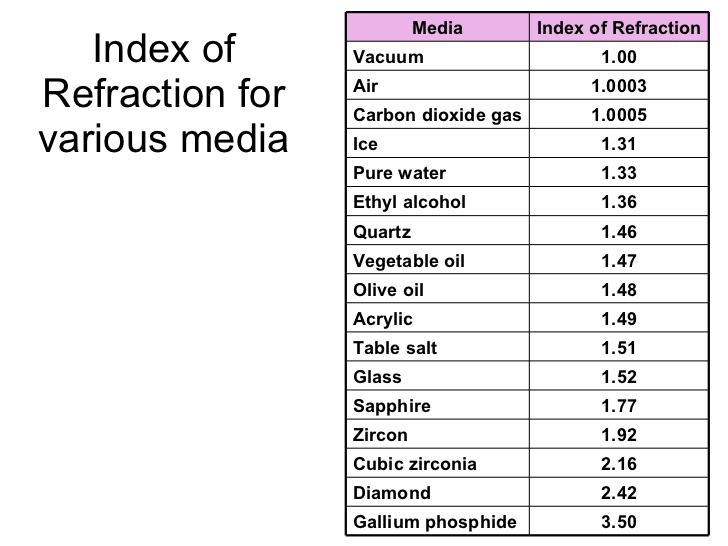
1. On the grid paper provided, graph the relationship between the sine of the angle of incidence and the sine of the angle of refraction. Be sure to follow proper graph rules (title, axis labels, proper scale, etc.) **[5 COM]**
2. Draw a line of best fit and calculate the slope. What does this slope represent?   
   (Hint: What does sinθi/sinθR equal?) **[2 APP]**
3. Determine the index of refraction of water based on your data. **[1 APP]**
4. Calculate the speed of light through your medium. **[2 KU]**

Communication marks for proper use of units and neatness of solution **[1 COM]**

1. Compare your experimentally determined index of refraction for water with the known index of refraction by calculating the percentage error. Show your work.

**[2 APP]** 

1. Discuss possible sources of error. Be sure to discuss only experimental error and **NOT** human error. Include a brief explanation of how you might address these sources of error. **[6 TI]**



1. Use the table provided to answer the following:

Communication marks for proper use of units and neatness of solution. **[2 COM]**

* 1. A ray of light travels from air into an unknown substance. If the angle of incidence is 25° and the angle of refraction is 7.0°, what is the substance? **[3 KU]**
  2. What is the speed of light through this unknown medium? **[2 KU]**